Georgia Institute of Technology
Graduate Curriculum Committee
Minutes
November 7, 2013

Present: Jagoda, (AE), Pikowsky (REG), Flowers (ARCH), Dickson (CHEM), Ferri (ECE), Sharp (Grad Studies), Boldyreva (CoC), Kvam (ISyE), Macrakis (HTS), Sluss (CoB), Breedveld (ChBE), Cozzens (VPGEFA)

Visitors: Laros (REG), Merkousko (REG), Hodges (REG), Bruckman (IC), Vigoda (CS), Venkateswaran (CS), Willis (VPGEFA), Webster (CEE), Borenstein (PUBP), Charnigo (PUBP), White (CoC)

Note: All action items in these minutes require approval by the Academic Senate. In some instances, items may require further approval by the Board of Regents or the University System of Georgia. If the Regents' approval is required, the change is not official until notification is received from the Board to that effect. Academic units should take no action on these items until USG and/or BOR approval is secured. In addition, units should take no action on any of the items below until these minutes have been approved by the Academic Senate or the Executive Board.

Academic Matters

1. A presentation was made by the College of Computing concerning a future proposal to modify the Doctor of Philosophy with a major in Computer Science. The proposal is to turn the CS Ph.D. program into a multidisciplinary program with home units corresponding to the three schools that operate the program:
   - School of Interactive Computing,
   - School of Computational Science and Engineering
   - School of Computer Science

   There were several questions about how this program would operate including whether using "concentrations" would make sense for a doctoral program, whether this would involve creating three new doctoral programs, or whether it would involve a substantive change to an existing program (Doctor of Philosophy with a major in Computer Science) and two new degree proposals (Doctor of Philosophy with a major in Computer Science-Interactive Computing and Doctor of Philosophy in Computer Science-Computational Science and Engineering.

   Committee members inquired as to why the "computer science" terminology needs to be in each degree title. Would the students feel disenfranchised, for example, if the degree titles reflected each area and did not include "computer science"? The strong sense of it is that the "computer science" terminology is very important for each version of this doctoral degree and that there is not support, at this time, for removing this language from the degree titles, regardless of whatever form is taken in the final proposal.

Depending upon the nature of the actual proposal packet, a prospectus would need to be submitted for any new program proposals and a degree modification for any changes.

The Registrar's Office and the Vice Provost's office will work with the College of Computing to follow up on the questions raised and determine a course of action.

2. A motion was made to *approve* a request from the College of Computing for a new course. The motion was seconded and approved.

New Course – Approved
CS 6475: Computational Photography   3-0-3

This course is jointly listed with CS 4475: Computational Photography.

3. A motion was made to *table* a request from the RCR Advisory Committee. The motion was seconded and approved.

Note: After a long discussion, it was determined that more information might be useful in reviewing the larger issues. For example, knowing how many students per term register for 7000 course credits would help know the extent of the need. Committee members went back and forth on whether this should apply to all master's students doing research, not just ones registering for thesis hours. Training for responsible research should be important for all who are doing research. There is concern about the workload for those offices that would have to keep track of which students had completed the training. NIH and NSF requirements were also discussed. The discussion will be taken up again once more information is gathered.

RCR Academic Policy for Master's Students:

The responsible conduct of research (RCR) is an increasingly significant component of the education and training of researchers. In 2011, the Georgia Institute of Technology implemented the RCR Academic Policy for Doctoral Students which requires all doctoral students admitted Fall 2011 or later to complete RCR training. The Policy contained a stipulation that such training would extend to the Master's student population by Fall 2012. A deferral for the MS initiative was requested until Fall 2014 due to the broad diversity of MS programs on campus and the logistics of serving a significantly larger graduate student population to implement the requirement. IGCC approved the deferral on September 13, 2012.

Proposal
All master's students who pursue a thesis option and are admitted Fall 2014 or later will be required to complete responsible conduct of research (RCR) education. Master's programs must select at least one of the following options for their thesis students:

<u>First Option</u> - Complete an online CITI RCR course. OR

<u>Second Option</u> - Successfully complete an RCR course that has already been approved to satisfy the in-person RCR training requirement for doctoral students. OR

<u>Third Option</u> - Receive at least 4 contact hours of RCR education during a course that is part of the curriculum for the particular type of master's degree (see approval process below).

Applicable students will be informed of the RCR requirement no later than when they first enroll for master's thesis hours. Documentation of completion of the RCR training must be submitted with the "Request for Approval of Master's Thesis Topic" Form to Graduate Studies.

A master's student who intends to pursue a doctoral degree is strongly encouraged to complete the First and the Second Options regardless of the option selected by the program.

Relevance to Compliance
This Policy addresses an academic requirement. Adherence to this Policy does not necessarily fulfill the compliance requirements of every funding source.

Approval for the Third Option
A master's program that plans to pursue the Third Option must receive approval in advance by the RCR Advisory Committee. The proposed approach must include at least 4 hours of RCR content that is relevant to the program's focus. The course that contains the RCR content must have a unique course number; it may not be a course with a special topics number. The program must identify, in the training plan that is submitted to the RCR Advisory Committee, at least four of the RCR topics (listed here: www.rcr.gatech.edu/topics/) that will be covered.

Implementation Plan
Upon approval of this Policy, the RCR Advisory Committee will contact all graduate program directors and ask them to respond to this Policy by a specified deadline prior to the start of the 2014-15 academic year. The RCR staff will work with the Office of Graduate Studies in order to develop the necessary reports for identifying applicable students and to make associated changes to the "Request for Approval of Master's Thesis Topic" form.

4. A motion was made to approve a request from the School of Civil and Environmental Engineering for new courses. The motion was seconded and approved.

   New Courses: Approved
   CEE 6345: Sustainable Engineering   3-0-3
   CEE 6528: Introduction to Bridge Engineering   3-0-3
   CEE 6590: Durability of Cement-based Materials   3-0-3
   CEE 6512: Advanced Dynamics and Smart Structures   3-0-3

5. A motion was made to *approve* a request from the School of Industrial and Systems Engineering for a degree modification. The motion was seconded and approved.

Degree Modification – Doctor of Philosophy with a major in Industrial Engineering:
Approved

The EDA (Economic Decision Analysis) Specialization is one of four specializations under PHD Industrial Engineering at The School of Industrial & Systems Engineering. The curriculum for the EDA specialization has become outdated over the course of ten years, and proposed changes were addressed in open discussion with the faculty and later with a committee of faculty involved with EDA classes. The changes in the EDA curriculum were voted on by the ISyE faculty on September 27.

The proposed change to the EDA Specialization Curriculum in the PhD IE degree has passed by a vote of 29 – 2. The vote for approval follows the initial request of faculty members who communicated concern about shortcomings in the previous curriculum, including classes that are not frequently offered (ECON 6106, ISyE 6227), courses that are restricted (ISyE 6783, 6785, 6793), and an interest to present a more focused set of subject matter for the EDA comprehensive exam. This last problem was addressed with the inclusion of a PhD level course on game theory (currently a special topics class). The faculty has addressed potential long-term problems with the EDA specialization, and it was agreed that future curriculum changes will be considered at a later date. The curriculum change was approved by the ISyE Graduate Committee in July, 2013.

The curriculum changes are listed below. The previous curriculum that it replaces is in the ISyE Graduate Handbook (see page 19). It is limited to simple course replacements (including courses that no longer exist) and incipient changes to comprehensive exam topics. There is no change in staff, number of ISyE course offerings, leadership, space requirements, or course delivery method.

Additions and deletions to the program are shown by use of ~~**Strikeout**~~ (deletions of current courses) and <mark>**Highlighting**</mark> (additions to proposed curriculum).

Specialization: Economic Decision Analysis

EDA Core
ISyE 6225   Engineering Economy
ISyE 6230   Economic Decision Analysis
~~ECON 6106   Microeconomic Analysis~~
<mark>ISyE 8813   Game Theory</mark>
<mark>ECON 7012   Microeconomic Theory I</mark>
<mark>ECON 7013   Microeconomic Theory II</mark>

OR Core
~~Math 4317   Real Analysis~~
ISyE 6661   Optimization I
ISyE 6663   Optimization III or ISyE 6664 Stochastic Optimization
ISyE 6761   Stochastic Processes I

Statistics Elective (select one course)
~~ISyE 6413   Design and Analysis of Experiments~~
~~ISyE 6414   Statistical Modeling and Regression Analysis\~~
<mark>ISyE 6402   Time Series Analysis</mark>

<mark>**ISyE 6421   Biostatistics**</mark>

~~**Supply Chain Elective (select one course)**~~
~~**ISyE 6201   Manufacturing Systems**~~
~~**ISyE 6203   Transportation and Supply Chain Systems**~~

~~**Finance/Economics Elective (select one course)**~~
Breadth Elective (select one course)
~~**ISyE 6759   Stochastic Processes of Finance I**~~
ISyE 6227   Introduction to Financial Engineering
ISyE 6673   Financial Optimization
~~**ISyE 6783   Statistical Techniques of Financial Data**~~
ISyE 6785   The Practice of Quantitative Finance
~~**ISyE 6793   Advanced Topics in Quantitative Finance**~~
~~**ECON 6160   Econometric Analysis**~~
~~**Math 6014   Game Theory**~~

~~It is recommended that the EDA and OR core courses listed above be taken before sitting for the comprehensive examination. All ten courses in the Program of Study must be completed in order to obtain doctoral candidacy. In the logistics electives, 7201 and 7203 can substitute for 6201 and 6203 (respectively).~~

For new students who have not taken Real Analysis, it is <mark>recommended you take Math 4317</mark> in your first year. The following courses comprise the comprehensive examination: ISyE 6230, ISyE 8813 (Game Theory), Econ 7012, ISyE 6661. All ten courses in the Program of Study must be completed in order to obtain doctoral candidacy.

6. A motion was made to *approve* a request from the School of Public Policy for new courses. The motion was seconded and approved.

   New Courses: Approved
PUBP 8101: WOPR I	1-0-1
PUBP 8102: WOPR II	1-0-1

   Note: These courses will be restricted to Doctoral level students and to PUBP majors. The abbreviation for the transcript in item #4 was changed to read "WORKSHOP ON PUB POL RES I" from "WOPR I". There is space for this longer title and it is more meaningful. The proposer accepted this friendly amendment.

7. The discussion on tuition differential process was discussed very briefly with a mention of upcoming deadlines and how programs may make the request. There was no perceived need to put this on an upcoming agenda. The Committee also was not certain as to whether it even needed to be aware of such requests within new program proposals. It might be of interest to know, but the Committee acts on the academic merits of proposals, not on financial issues. There is a separate process for financial and facilities-related issues within program proposals.

8. A motion was made to *approve* a request from the College of Business to award a posthumous degree. The motion was seconded and approved.

Adjourned,

Reta Pikowsky
Registrar